CHEMISTRY 445

PHYSICAL ORGANIC CHEMISTRY

SPRING 2014

Instructor
Prof. Anatoly Kolomeisky
Anderson Biology Laboratory 306
Phone: (713) 348-5672
E-mail: tolya@rice.edu
Office Hours: by appointment

Required Textbook
Eric V. Anslyn and Dennis A. Dougherty, *Modern Physical Organic Chemistry*,
University Science Books, 2006.
Note: Solution Manual to this textbook are not allowed to use for solving home work assignments!

Additional Recommended Textbooks
F.A. Carey and R.J. Sundberg, *Advanced Organic Chemistry. Part A*,
Plenum Press, 2007.
Barry K. Carpenter, *Determination of Organic Reaction Mechanisms*,
Wiley Interscience Publications, 1984.

Course Outline:
In this course we will discuss some fundamental mechanisms and physical principles that govern processes in Organic Chemistry. Our goal is to understand mechanisms of most important Organic Chemistry chemical reactions.

- Bonding Concepts.
- Stability and Strain of Molecules.
- Conformational Analysis.
- π-Electronic Effects.
- Solutions.
- Hydrogen Bonds.
- Binding Forces.
- Hydrophobicity.

- Molecular Recognition.
- Supramolecular Chemistry.
- Acid-Base Chemistry.
- Chemical Kinetics of Organic Reactions.
- Linear Free-Energy Relationships.
- Catalysis.

Grading:

Grades will be based on the student's performance on two mid-term exams exams (20% each), 1 final exam (30%) and 6 homeworks (30%).

Exams:

There will be two mid-term and one final take-home exams. All exams are mandatory.

Homeworks:

Homeworks usually will be distributed weekly or bi-weekly and they will be graded on a scale from 0 to 10. Homeworks in most cases are due one week after assignment.

If you have a documented disability that will impact your work in this class, please contact me to discuss your needs. Additionally, you will need to register with the Disability Support Services Office in the Ley Student Center.